Engineer Expeditionary Force Design Concepts—From Theory to Practice in Task Force Able

By Colonel Christopher J. Toomey

The Army is changing. Recent dramatic changes in the Army force structure toward a modular force impel the Engineer Regiment to change to stay relevant. We must continue to contribute on a battlefield that bears little resemblance to the linear, Cold War environment in which most of our engineer forces were structured to fight. Though we are busy fielding Stryker-equipped engineer companies in the Stryker brigade combat teams (SBCTs) and will develop companies as integral parts to the maneuver-based brigade units of action (UAs),[1] the bulk of our Regiment must adapt to the fundamentals of the future Army, (primarily at the unit of employment [UE] level) that call for tailored, scalable, modular, and responsive forces.[2]

Expeditionary Force Design Concept

The Regiment is exploring the engineer expeditionary force design concept as a force structure framework (Figure 1).[3] At the tactical level, the concept proposes combining engineer effects modules (EEMs)—building block elements with well-defined skills—with command and control (C2) elements into engineer mission teams (EMTs) that optimize engineer effects for a specific mission. The concept envisions a palette of EEMs that are dynamically task-organized into EMTs to fight discrete engineer engagements and then are reallocated by the engineer mission force (EMF), the headquarters that orchestrates and synchronizes their efforts, as the mission dictates.

It is a valid concept, but if it is exclusively tied to radical changes in engineer unit structure, it must overcome friction in the force development process. The long-term answer may be to make new, purpose-built engineer forces. However, a midterm solution is a mindset that engineer leaders can adopt today to employ engineer expeditionary concepts using current forces. The intellectual leap involves shedding the traditional parent organization and rigid logistical tail approach to employing engineer forces and turning available units into

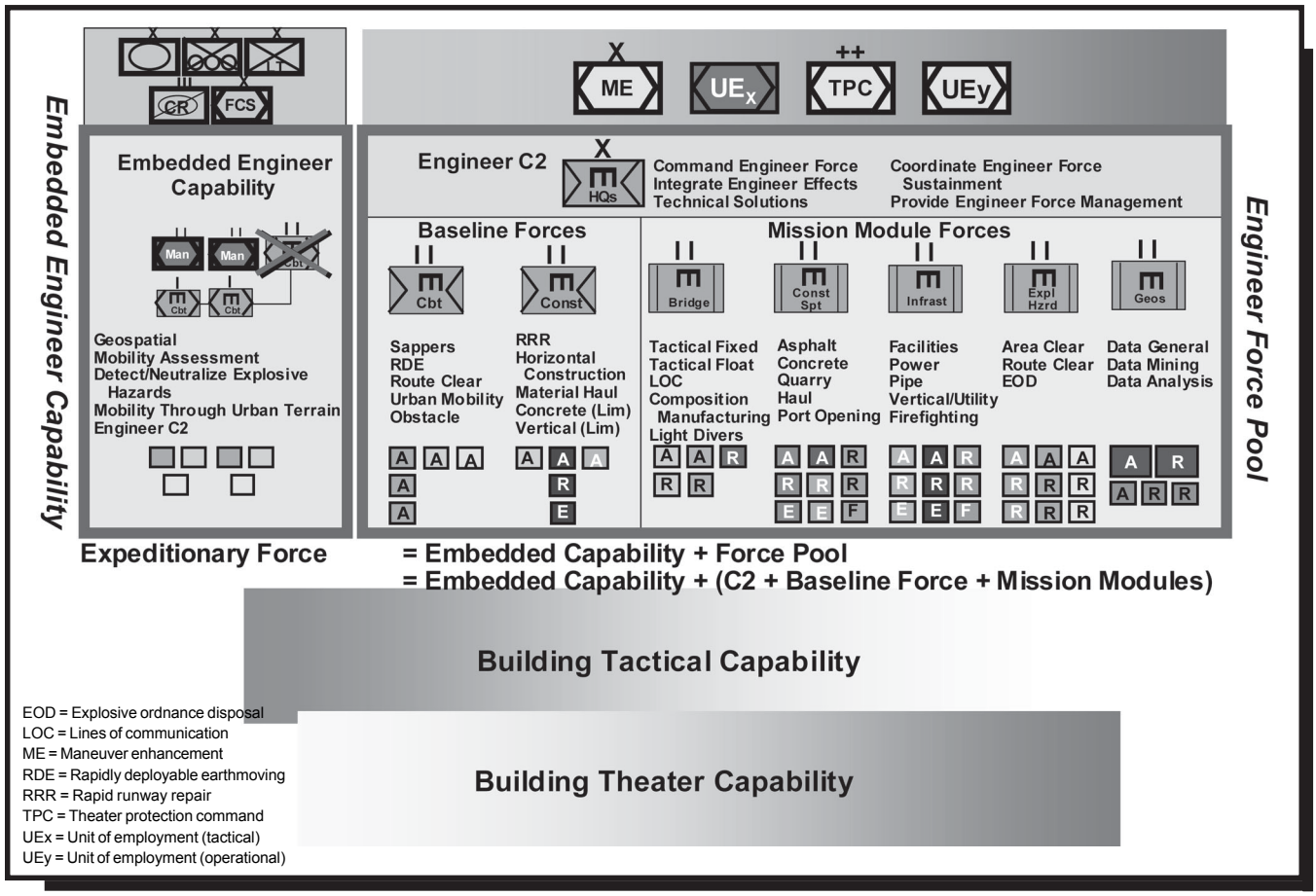

Figure 1. Future Engineer Force Framework

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EEM packages that are combined into EMTs and used to fight specific engineer engagements.

During Operation Iraqi Freedom, the 555th Engineer Group led the multifunctional and multicomponent Task Force Able as an EMF integral in the 4th Infantry Division. It successfully employed engineer expeditionary concepts with traditionally organized combat and general engineering assets to execute combat missions that not only enhanced the versatility and agility of Task Force Able but increased its ability to contribute to the division's fight.

Starting in July 2003, Task Force Able aligned its forces to create a menu of C2, sapper, vertical and horizontal construction, bridge emplacement, and logistical EEMs that were rapidly combined under C2 nodes to fight specific engineer engagements and then disengaged as the mission set changed. This required adopting a revised mental map of engineer forces that transformed traditional organizations into EEMs and EMTs. For example, rather than looking at a combat heavy battalion as three combat heavy companies with a headquarters, Task Force Able created a mental map of this unit as a battalion-level C2 node, company-level EMT C2 nodes, and vertical and horizontal EEMs (Figure 2). Other units were viewed similarly. A corps wheeled company was mapped to consist of an EMT C2 node, three sapper EEMs, and a horizontal construction EEM. Though EEMs execute specific skills, early on it was deemed impractical to make them smaller than platoons, given the nature of combat operations, force protection requirements, and the need for small-unit cohesion.

From Theory to Practice

Building the Haight-Jordan Bridge

Named for two 14th Engineer Battalion soldiers who died in Operation Iraqi Freedom, the Haight-Jordan Bridge is a Mabey-Johnson float bridge, more than 300 meters long, across the Tigris River, south of Tikrit. Building the bridge included developing a connecting road network and significant road construction, as well as initiating force protection measures and field fortifications during and after construction. To accomplish this mission, Task Force Able employed engineer expeditionary concepts. A company-level C2 node was assigned the following EEMs: a horizontal construction module for earthmoving, a bridge module for bridge erection, and a combat engineer module for security and force protection. None of these units came from the same company or battalion, but represented the diversity of Task Force Able, with units from all Army components—active, reserve, and National Guard. The result was the seamless integration of all forces and a successfully executed mission. Of particular note was the C2 node that was in fact a corps wheeled company headquarters. Its task was to integrate and orchestrate the technical modules to accomplish the mission.

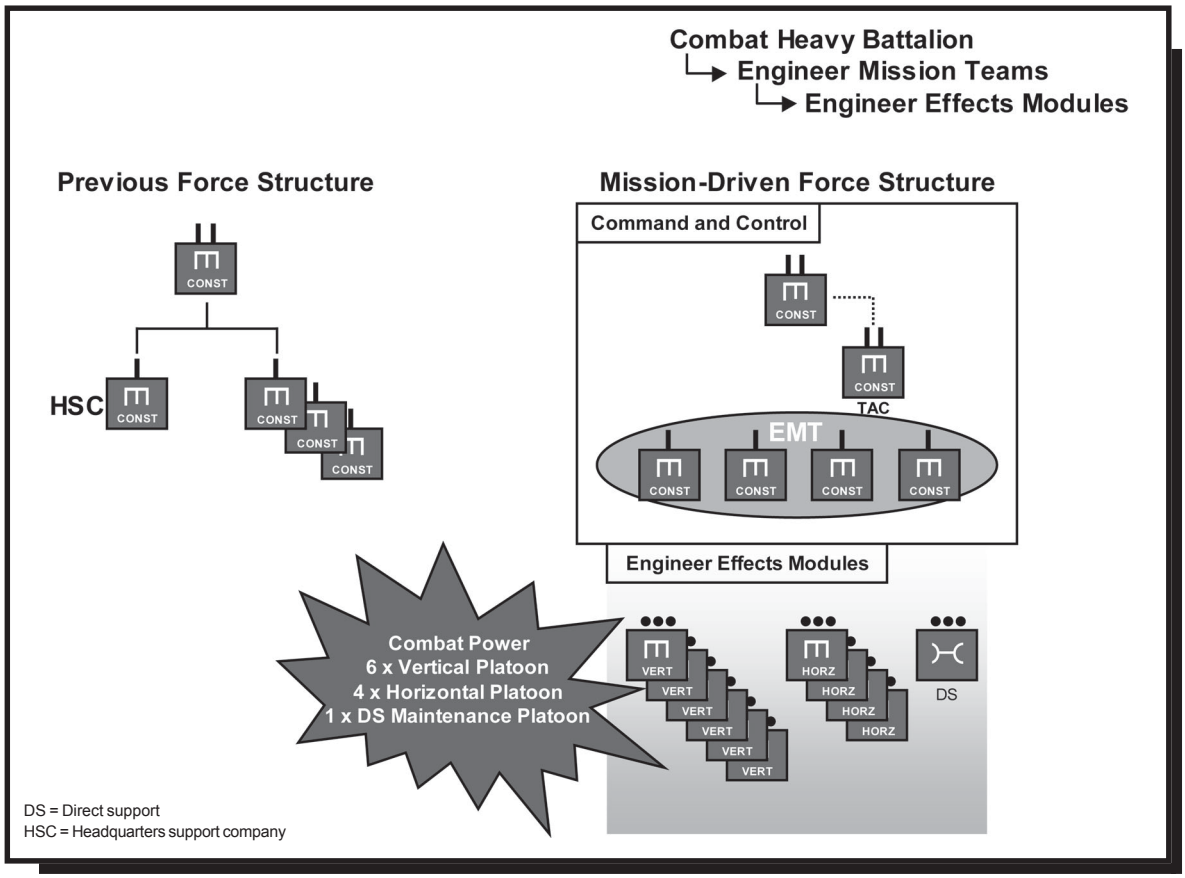

Figure 2. Mental Mapping Expeditionary Concept

Task Force Able built the Haight-Jordan Bridge across the Tigris River, south of Tikrit.

Forming Task Force Trailblazer

Combating improvised explosive devices (IEDs) along key routes within the 4th Infantry Division's area of operations made it necessary to form Task Force Trailblazer. Established around a battalion headquarters as a lieutenant colonel-level EMT C2 node, Task Force Trailblazer was formed with company EMT C2 nodes controlling mission-oriented surveillance, security, and obstacle reduction modules from multiple organizations. The C2 nodes used the modules in a plug-and-play mode that optimized their capabilities. Construction equipment platoons coordinated with sapper platoons to clear and grub roadway shoulders and medians to eliminate IEDs and discourage future emplacement. Surveillance and security modules were integrated to provide oversight and protection along the routes during clearance operations and counter-IED ambushes. The end state was fully optimized clearance packages that could be moved easily about the battlefield to respond to changing threats.

Lessons Learned–Keys to Success

Task Force Able gained early lessons learned from incorporating engineer expeditionary concepts with current engineer forces. As the task force reflects on its role in Operation Iraqi Freedom and prepares for future operations, it will continue to revise and assess these lessons.

Creating Multifunctional EMT C2 Nodes

Battalion and company leaders conducting operations with Task Force Able freed themselves from traditional, unit-specific jurisdictions. A bridge company headquarters was expected to serve not only as an EMT for bridging operations but also as an EMT C2 node for nearly any engineer operation. This gave the task force commander greater flexibility since any company could provide the C2 necessary for an EMT and, given the appropriate EEMs, complete any engineer mission. The commander could rapidly task-organize around assets that either were not engaged or were near the mission location. This became critical on a dispersed and dynamic battlefield and required great agility on the part of the company-level leaders, who had to transform from engineering specialists to engineering generalists. Clearly, this application required a touch of reality: a combat heavy EMT C2 node was best for a construction engineer mission. Yet, multiple missions were accomplished with EMT C2 nodes going "against type" in directing a variety of EEMs.

Building Flexible EEMs

Battalions and companies were charged with developing truly plug-and-play EEMs from their platoons. This developed over time, and success varied among units.

- Units must tailor their logistics and free their units from logistical constraints. The task force and subordinate battalions became adept at providing combat service support to a variety of EEMs, and moving logistical EEMs became routine. Maintenance was the toughest area to resolve. Units profited from an understanding of the maintenance requirements of all EEMs. Task Force Able relieved maintenance shortfalls by aggressive use of mobile maintenance teams and the development of transferable, EEM-specific prescribed load lists (PLLs) that could accompany units.
- Units must ensure that communications and standard operating procedures (SOPs) are compatible, consistent, and streamlined. Faced with a multicomponent force, Task Force Able had to reallocate communications assets and work hard to develop consistent SOPs and protocols that helped ensure continuity across the task force. There were hiccups, but over time an EEM from one battalion could easily work with an EEM from another battalion as part of an EMT.
- Units must establish protocols to rapidly integrate EEMs into EMTs, with the burden placed on the EMT C2 node. These bonding techniques, based on enhanced leader battlefield circulation and staff focus on integration, placed incredible demands on the unit leadership.

Training the Battle Staffs

It was essential to train Task Force Able's battle staffs to accommodate dynamic task organization to ensure that the EMTs were properly integrated and resourced. This required extensive training, and the task force developed an in-theater program—executed concurrently with combat operations—to train them. After-action reviews that focused on the application of EMF principles were essential. Units that train for a traditional, pretransformational, echelons-above-corps role were most challenged in retooling their battle staffs. However, all units made the transition.

Ensuring Cohesive Senior Leadership

Leadership at the task force and battalion levels was essential to the successful implementation of EMF concepts and the success of Task Force Able. Battalion leaders had to stop thinking in terms of "their" units, assume a broader task force identity, and become dedicated to ensuring that uniformly high Task Force Able standards were applied. All soldiers and junior leaders required coaching, counseling, and mentoring. It was a challenge to maintain unit identity, ensure that administrative actions were accomplished, and foster critical home station threads such as family readiness groups. Yet, a great result of employing EMF concepts was a more cohesive senior leadership that was extremely familiar with the breadth of task force operations.

Conclusion

As the Army moves to greater modular forces, the Engineer Regiment should not wait for radical changes in its current echelon-above-division and echelon-above-corps force structure to align itself with emerging concepts. As shown in recent combat operations, engineer soldiers and leaders are equal to the challenge. Engineer organizations, once liberated from traditional employment concepts, can embrace transformational concepts and embark on the road to more modular, agile, and responsive forces.

Colonel Toomey commands the 555th Engineer Group at Fort Lewis, Washington. He is a graduate of the U.S. Military Academy, the Naval War College, and MIT. He has had numerous command and staff assignments, to include Commander, 14th Engineer Battalion, Fort Lewis, Washington.

Endnotes

[1] *Unit of Employment (UE) Operations White Paper,* Training and Doctrine Command Analysis Center (TRAC), 23 January 2004, p. 39.

[2] Ibid, p. 12.

[3] Lieutenant Colonel Bryan Watson, *Future Engineer Force Brief*, U.S. Army Engineer School, Fort Leonard Wood, Missouri, 27 February 2004.